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Pertinent findings from the combined analyses of results of the United States Office of Education First-Grade Reading Studies are presented. Suggestions for incorporating diagnostic findings into the classroom teaching of reading are presented. The first-grade studies demonstrate that the reading achievement of first- and second-grade children is more closely related to the situation in which they are taught than it is to the general method by which they are taught. Greater variation in reading is found among the classes within any method than is found between the methods or the projects, even when the effects of differences in pupil abilities or projects in the 1,000 classrooms were controlled. Much of this difference should be attributed to differences in teacher effectiveness. It was concluded (1) that the whole area of differences in specific teaching techniques, rather than differences in general method, needs further exploration, (2) that more research is needed to isolate the types of problems children develop while growing in reading, (3) that there is need for the development of programed self-corrective exercises designed to overcome the more common types of learning problems children develop, and (4) that most of the adjustment to individual differences is made by the sensitive, effective teacher. (KJ)

[INTERNATIONAL READING ASSOCIATION, BOSTON, APRIL 24-27, 1968]

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Diagnostic Teaching in the Classroom

Guy L. Bond

In recent years many new approaches to reading instruction have been suggested that look promising for improving the reading capabilities of every child. The relative efficiency of these new methods are being studied and debated. Questions also are being raised in regard to the appropriate use of historical methods of teaching reading. Much discussion and research is being focused upon the balances needed between the skill phases of reading instruction and the meaningful, creative, and appreciative outcomes of that instruction. Even though a great deal of research has been devoted to these problems, there are still many controversies concerning instructional procedures in reading.

In the classrooms of America, we have the best teachers of reading the world has ever known. For most children, growth in reading is a successful undertaking. For many, however, the progress is slow; and for some, reading capability appears to be an almost unobtainable accomplishment.

There is a continuous search for new ways of teaching reading which will prevent difficulties from occurring, thus enabling all children to become successful readers. At the same time, we want to make the program difficult enough to challenge the most rapid learners. Fortunately, the approaches to reading which make for maximum growth can also be taught in ways that limit the frequency of reading disabilities. In discussing the problems involved in the diagnostic teaching of reading in order to get maximum growth for all children and to prevent the onset of reading disabilities for any of them, I have selected three questions to explore with you.

1. What does the combined analysis of results of the United States Office of Education First Grade Reading Studies show in regard to different methods of instruction?

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2. What approaches to diagnosis are practical for classroom use?

3. How can the findings of classroom diagnosis be incorporated into the classroom teaching of reading?

Some of the major considerations involved in answering these questions will be discussed in the paragraphs that follow. I will suggest, also, some of the research that I think is needed.

Pertinent Findings from the Combined Analyses of the First Grade Reading Studies

Many of the new approaches to reading instruction were explored extensively in the First Grade Reading Studies and the Second Year Follow-up Studies. These studies were, in fact, twenty-seven independent research projects the first year, with fifteen continued into a second year. They were so well-coordinated in research design, instruments of measurement, information gathered, and comparability of data collected that comparisons among them could be made. In some ways, the most unique characteristic of this group of projects is that it can be considered to be one large study, since the data (from the nearly one thousand classrooms) were combined for further analyses by a coordinating center. The composite analyses allowed the testing of many hypotheses that were not within the scope of any one of the independent projects. Only the major findings from the combined analyses which relate directly to the diagnostic teaching of reading are included in the following summary statements:

1. There are vast differences among the children in capabilities related to success in beginning reading. These analyses indicate that a fair amount of the variation in pupil success, in both the first and second years of instruction, can be accounted for by the differences in attributes children bring to the learning situation.

2. There is no evidence to show that any one method is uniquely suited to overcome the limitation in reading growth imposed upon children by deficiencies in any characteristic measured in these studies. Furthermore, none of the approaches used was found to be uniquely effective for pupils who are especially gifted in any of the pre-measured abilities.

3. No one approach studied is so distinctly better than the others in all situations that it can be considered the one best method, nor used exclusively.

4. There are many indications that combinations of programs, such as a basal reading program with supplementary phonics materials, are superior to single approaches.

5. There is ample evidence to show that word study skills must be emphasized and taught systematically regardless of the general method used.

6. There is also evidence to indicate that the meaningful and creative aspects of reading should be given definite emphasis.

7. No one method is uniquely more suited to boys or to girls than are other methods. On an average, under whatever methods the girls' achievement is markedly superior to the boys'. It is therefore necessary for teachers to have differential expectations concerning the mean achievement of boys and girls. A partial explanation for differences in achievement of boys and girls is that boys are less ready to read when they enter school. The difference in reading achievement between boys and girls is so universal in all the methods and circumstances in these studies that further research in teaching reading to boys is indicated. The project conducted by George Spache shows that a prolonged period of readiness training is exceptionally profitable for boys who are educationally disadvantaged. On the other hand, for boys who come from more educationally advantaged situations, such extended readiness is wasteful. Carl Rosen, in an independent study, found that for boys prepared for reading in other respects, but low in visual perceptual capabilities, an intensive program of training in such skills is an effective means of increasing reading growth; while for others who are not low in visual perception, such training was wasteful. Studies designed to explore the reading capabilities of boys and the predominance of extreme disability cases among boys will need to include such areas, as: social attitude toward reading; nature of content presented in reading materials; diagnosis and treatment of readiness factors; differences in verbal fluency at the early grade levels; motivational differences; attention-maintaining procedures; and the influence of frustration.

8. In my opinion, the most important findings of the First Grade Reading Studies are two-fold. <u>First</u>, the studies clearly demonstrate that the reading

achievement of first and second grade children is more closely related to the situation in which they are taught than it is to the general method by which they are taught. Pupils within any given project tended to achieve the same, regardless of the method of instruction used. For example, the phono-linguistic, I.T.A., and basal reading methods were used in project "D". At the end of two years of instruction, these three methods used in project "D" ranked first, second, and third in reading achievement among the twenty-three different project-methods followed for the two years. Project "C" used language-experience, basal, and I.T.A. as methods. These three methods used in project "C" ranked fifteenth, sixteenth, and seventeenth among the twenty-three project-methods investigated for two years. On the other hand, any given method used, irrespective of which one is considered, might have appeared anywhere in the overall rankings, even when pupil differences in pre-measured characteristics and differences in teacher experience were controlled by covariance techniques. For example, there were three projects which used language-experience as one of the methods. These three ranked fourth, tenth, and fifteenth in reading achievement among the twenty-three possibilities at the end of the second year. Or again, I.T.A. treatments, used in five projects, ranked second, sixth, seventh, seventeenth, and twenty-third. These rankings indicate that the community or school system in which reading is taught has a much greater influence upon how well children learn to read than does the general method of instruction used. We need much more research to find out what specific influences make for differences in reading achievement from school system to school system. There is no one in this room who is unaware of the complexities that exist with regard to children, teachers, learning situations, and reading itself. The interactions among these elements of the learning situation warrant careful investigation.

The second major finding is that greater variation in reading is found among the classes within any method than is found between the methods or the projects. This is true even when the effects of differences in pupil abilities, projects, et cetera in the nearly 1,000 classrooms were controlled by covariance techniques. Much of this difference, therefore, should be attributed to differences in teacher effectiveness. An analysis of the teacher differences found

in the First Grade Reading Studies indicated that the most successful teachers are rated as: a) having well-organized classes; b) encouraging considerable class participation; c) analyzing with exceptional skill the reading growth of each child to locate his instructional needs; and d) making provisions for correcting any limiting or faulty approach to reading. This is the type of teaching needed whatever general method of instruction is being used. The underlying element is the extent of service the teacher gives to each child at the time he needs help. This is the type of teaching I choose to call diagnostic teaching of reading.

These two findings imply that, for the most part, the differences in pupil success, aside from those related to their own abilities, are due to differences in the overall learning situation fostered by the school systems, and even more, by the specific teaching techniques used by the teachers rather than the general method being employed or the specific materials being used.

The whole area of differences in specific teaching techniques, rather than differences in general method, needs further exploration. I believe an effective approach to such studies would be in the nature of a job analysis of teaching practices used by selected outstanding teachers. From such studies, a compilation of specific practices could be made and then grouped according to learning principles. Such areas, as: the role of children's knowledge of results; the influence of incentives; the effectiveness of adjustment to learning needs; the importance of structured learning situations; and the role of teacher expectations could be explored. The actual techniques and teaching devices used by teachers who have outstanding success in teaching reading could be assembled for distribution to other teachers as suggested useful ones.

Practical Approaches to Classroom Diagnosis

The effectiveness of diagnostic teaching is based upon the extent to which the teacher knows each child within the classroom. Knowing the child and his instructional needs is much more than knowing his name, the occupation of his father, and the number of brothers and sisters he has. In order to teach all the children for maximum growth in reading and to avoid the onset of

confusions in learning, the teacher must be aware of and adjust to each child's capacities, his physiological condition, his emotional and social adjustments, his interests, attitudes, and drives, as well as his general level of reading ability, all in their dynamic aspects.

In addition to such personal, intellectual, and physical characteristics of each child, the teacher must know the specifics of each child's reading development. It is to the child's growth in the specific skills and abilities in reading, above all else, that the instructional program must be geared. Diagnostic teaching is based on an understanding of the reading strengths and needs of each child. These knowledges must be used to modify instructional procedures so that teaching, adjusted to the changing needs of the children, can be maintained. Such teaching is based on continuous diagnosis of the skill development of each child. It is also based on flexibility in programs of instruction so that the teacher can alter the general procedures or methods, whatever they might be, to meet the specific needs of the individual.

A given child may find most of the learnings relatively easy and quickly accomplished, but some of the learnings difficult and time-consuming. One child, for example, may find the knowledge of initial sound-symbol relationships relatively easy to learn, whereas he may develop but little skill in using meaning clues to word recognition. In the same class under the same instruction, another child may quickly develop too much dependence upon meaning clues and too little skill in sound-symbol relationships. Fortunately, most children maintain a rather consistent balance among the essential skills and abilities of reading, and need only a small and infrequent amount of specific re-enforcement to maintain effective growth. Even for these children, the teacher should be alert to the possibility of neglected skills or knowledges so that no accumulation of minor problems is allowed to persist. Many serious disabilities are simply the result of minor confusions which have been allowed to continue and pile up.

The vast majority of children get along remarkably well in reading. They learn to read in accordance with their capacities for such learning. These children are helped if the teacher recognizes their minor deviations from effective, balanced reading growth, and gives added or modified instruction

to overcome any faulty or inadequate learning that might occur. Naturally, some children require more careful and continuous diagnosis than do others. The children who have more complex problems in learning to read than do most, make up only a small percentage of those being taught. Usually there are no more than two or three in a classroom of thirty children. In these instances, more thorough and time-consuming appraisals may be needed. These children also may require a more intensive program of remediation than is given to others within the classroom. Some of their proglems may be too time-consuming or too complex to be diagnosed and corrected by the classroom teacher, who must always consider the welfare of the entire class, as well as the individual disabled reader. Frequently a thorough diagnosis of a child's reading problem with accompanying suggestions for remediation, made by a reading specialist, will enable the classroom teacher to correct the difficulty without interfering with the progress of the rest of the class. In some instances, the child in question can best be served in a reading center or at a remedial clinic. These are decisions that must be made cooperatively by the classroom teacher and the remedial personnel.

Every child's reading growth must be appraised continuously if his individual progress is to be maintained at a high level, and if any confusion is to be detected before the more stubborn problems develop. Work samples, always present in the day-by-day teaching and learning activities of a class, enable the expert teacher to gain familiarity with each child's needs. More systematic observations may be made, from time to time, by means of informal diagnosis or by standardized testing procedures. In studying the children's reading patterns, the teacher uses the many sources of information available in order to know the nature of instructional modifications that should be made in meeting the learning needs of any individual child. The usefulness of some of these sources will be discussed in the paragraphs that follow.

Mental tests have both strengths and limitations as useful sources for diagnosing the instructional needs of children within the classroom. There is an increasingly high relationship between mental maturity of children and their reading stature at any given educational level as they progress up through the grades. At the end of grade one, for example, the correlation between

measures of intelligence and reading comprehension is found to average .45 for the six types of instruction used in the First Grade Reading Studies. At the end of the second year, the correlation between measures of intelligence given at the start of the first grade and reading comprehension measured at the end of the second year averages .48. Other studies have shown that Binet intelligence measures correlate with comprehension scores between .30 and .40 at the end of the first grade; between .50 and .60 at the end of the fifth grade; and may go as high as between .70 and .80 at the end of the ninth grade.

Such relationships could mean that in the early years other pupil characteristics, such as: visual perception; auditory perception; and cultural background are dominant determiners of success in reading. In fact, the First Grade Reading Studies show that such a culturally-influenced measure as, knowledge of letter names, given prior to instruction and reading comprehension measured at the end of the first grade correlate on an average .55.

Such evidence indicates that while measures of intelligence predict, to a substantial extent, the stature in reading a given child may ultimately be expected to attain, it is erroneous to expect all intellectually-capable children to be highly successful with the type of learning required in the early years. It also should be pointed out that no matter what general reading method is used, a relatively low relationship exists in the first years of instruction. As some of the more elemental basic skills in reading are established and as the interpretation of content begins to play a more dominant role in success, intelligence becomes more highly related to performance.

The teacher, in the early years, must be on guard against the two fallacies of thinking: 1) because a child has early difficulty, he is intellectually inadequate; or 2) because he is intellectually capable, he automatically gets along well. Rather, teachers in the early grades should be sure the child is prepared in all respects for initial instruction. Recognizing that intelligence is just one among many pupil characteristics related to success, will enable the teacher to make more adequate instructional adjustments to each child.

There is need for a considerable amount of research in the whole area of preparing children for initial instruction in reading. For example, how soon

should reading instruction start; what characteristics within children are amenable to training; are additional diagnostic readiness tests needed; when is a given child equipped to begin to learn to read; how effective are programs such as the Head Start program? In addition, a whole series of laboratory studies should be designed, each study to isolate one theoretical factor for exploration. One such study, for example, conducted by Dustin Wilson, shows that children do not necessarily learn to associate symbol with idea more effectively when presented with pictures and verbal material than when the verbal material is used alone. In this study, the pictures proved to be a distraction. It would be interesting to expand this study to find out whether or not some reading textbooks are illustrated to the point of distraction. Psychological laboratory studies could explore other areas, such as: amount of repetition needed in programmed materials; expectation levels for children of varied readiness and intellect; the influences of meaningful learning and knowledge of results; the role of motivation to the learner; the effect of structure upon generalization; and the like.

Standardized reading achievement tests are valuable aids to the teacher in three ways: 1) for grouping pupils for instruction; 2) for diagnosis of areas of general as well as individual needs; and 3) for assessing the effectiveness of instruction in modifying reading growth. Most expert teachers study the results of tests to obtain indications of the level of advancement of the pupils in the class. For any given pupil, the average grade score indicates the level of material which should be used for his instruction. The teacher recognizes that the results of such testing provides only a first approximation of the pupil's instructional reading level and the reading group to which he is best suited. Readjustments in grouping have to be made as the instruction progresses and as supplementary information is obtained from daily observation of the pupil.

The teacher also uses test results to diagnose the general and individual instructional needs of the children. Some classes are found to be somewhat weaker in a specific type of comprehension than in others. Expert teachers frequently decide to stress, for the class as a whole, certain types of learning after studying the test scores. For an individual child, any limitation shown by his test profile indicates an area for concern to the teacher. Test

results do not necessarily indicate the nature of the instructional problem for an individual child. They do, however, alert the teacher to areas in which further diagnosis of a potential problem is necessary. By means of group or individual diagnostic tests, informal diagnostic inventories, or the all-important daily informal observations, the teacher ascertains the specific type of instruction the pupils should be given.

Standardized tests, given periodically, have another useful role to play in the study of pupil attainments. They allow teachers to assess the effectiveness of their own instruction in modifying reading growth. The expert diagnostic teacher is an experimental teacher, who modifies prescribed approaches to fit the needs of the children in the class. Such a teacher needs to appraise the influence of the modifications by some standard yardstick in addition to the daily observations of the effectiveness of the procedures used. Standardized tests give such a check on personal estimates of success.

Standardized diagnostic tests are used by many effective teachers to study the specific types of emphasis in instruction needed by individual children in the classroom. Since such tests are time-consuming to give and to score, they are usually reserved for the children who have puzzling learning problems. There are both group and individual diagnostic tests available. Most likely the group tests are more practical for the use of classroom teachers, although many expert teachers find that they obtain additional insight by giving some children individual tests.

Informal diagnostic inventories and informal daily observations are the most efficient and informative appraisals which are made by the teacher. It is through these informal studies of the instructional needs of children that the great potential of diagnostic teaching becomes a reality. The teacher, alerted by the more formal diagnostic tests and appraisals, has a daily work sample of the children to guide him. Through testing, the teacher knows that a child is relatively weak in word recognition, for example, and through daily observation, it becomes apparent that his specific weakness is in knowledge of initial blends, in faulty use of context clues, in too much dependence upon letter-by-letter sounding, in insufficient knowledge of vowel sounds, or in whatever other word-recognition skill his problem lies. Most

of the specific instructional needs are diagnosed by the expert teacher through observations made in the actual process of teaching. The correction or remediation of the unfortunate patterns often can be accomplished during the daily reading instruction.

Many teachers keep a diagnostic notebook in which they list the children within each instructional group. As the teacher studies each child's reading pattern, he makes a notation of any reading characteristic that might limit the child's reading growth. Also, any indication of visual difficulty, auditory limitations, unfortunate attitudes, specific interests, tendencies toward fatigue, or any other pertinent information is recorded. A teacher, for example, might observe that one child, poor in comprehension, is a word-by-word reader; another child good in using analytical skills, is ineffective in using context clues as an aid to word recognition; a third child has a limited meaning vocabulary; another reads rapidly, but with many inaccuracies, because he is uncertain about initial blends and digraphs; still another child reads slowly because he over-articulates as he reads; another has excellent word-recognition capabilities, is able to comprehend all the details in a passage, but he is relatively ineffective in organizing, evaluating, and reflecting upon what he has read. The teacher rightly feels that all of these types of problems can be corrected while teaching the group as a whole.

Incorporating the Findings of Diagnosis into the Regular Reading Lessons

The expert teacher makes adjustments to meet the needs of each child in the regular reading lessons. As the children progress through the reading lesson, the teacher has many opportunities to give each child the necessary experiences he needs to overcome his particular reading problems.

With a knowledge of the results of all the appraisals, including his daily observations, the teacher is able to modify the general approach to reading so as to adjust instruction to meet the individual needs of the children. The more diversified the approach, however, the greater will be the opportunity for the teacher to make such adjustments. This may be one reason

why combined approaches to reading prove more effective than do more narrow programs.

Most reading lessons can be separated into introductory, guided reading, and follow-up phases. During the introductory phase, which includes introducing the lesson, developing concept and word meaning, introducing unknown word patterns, and setting purposes for reading a selection, instructional adjustments can be made to help children with certain types of reading problems. In the guided silent reading and discussion phase, other types of instructional modifications are possible. During the follow-up phase of teaching the lesson, which includes exercises to develop specific skills and abilities, and related recreational and self-selective reading, many other opportunities for meeting individual needs are present.

During the introductory phase of teaching a selection, the teacher gives the child who is weak in the use of context clues, more opportunities to select from among the new words being introduced, those that fit properly with the context of either oral sentences or those that are presented on the chalkboard. The teacher gives the child who is having difficulty with initial blends, more opportunities to work upon those presentations that emphasize similarity of initial blends in known and unknown words. For the child who has a limited meaning vocabulary, participation in the discussion of the pictures and the concepts for clarification of word meanings is indicated. Such a child is encouraged to attend to the meaning of all words introduced so that the habit of attending to words and their meanings is fostered. When the purposes for reading are being developed, children limited in specific types of comprehension should be given more opportunities to discuss how to read for a specific purpose. The teacher might even adjust the purpose for reading for a given child. The child who reads to note the details, but is poor in reflecting upon what is read, for example, might be asked to read the selection in order to tell in one sentence what the selection was about, or to write a headline or a title for the selection.

During the guided reading and discussion phase of reading a selection, the teacher might call upon the children to relate some of the contents of the selection. If a misconception is noted, the teacher should use this as

an instructional opportunity in order to correct the faulty reading procedure instead of calling upon another child for the correct response. The teacher should have the child who made the mistake, locate within the selection the place where the idea was presented, and then explore with him in order to see how the error came about. In this way, the specific reading difficulty would be called to the attention of the child, thus helping him to overcome his problem.

In the follow-up phase of reading a selection, the teacher has unlimited scope in adapting to individual needs. In the skill and ability exercises prepared by the teacher, emphasis can be placed where it is needed. In the skill development books, the teacher may excuse a child who depends too much on context clues, from those exercises emphasizing their use. Or, again, the word-by-word reader may be excused from word-drill exercises, and be encouraged to prepare a conversational selection for oral reading, stressing reading the selection in the way people talk.

More research is needed to isolate the types of problems children develop in the normal course of growing in reading. There is great need for the development of programmed self-corrective exercises designed to overcome the more common types of learning problems children develop. Teachers, attempting to adjust to the learning differences in children, would find such materials of significant value. Material designed to enable two or more children with a common type of problem to work together would also be helpful in follow-up skill development work. But most of the adjustment is made by the teacher who is sensitive to the needs of each child and who makes modifications to correct any confusion before it becomes seriously limiting to a child's future growth in reading. Such a teacher is a <u>diagnostic teacher</u>. If this type of teaching is coupled with the broad use of children's literature and the development of a stimulating learning environment where children feel free to participate and express themselves, the reading program will develop maximum growth for all the children and will limit the frequency of reading disability. This is true no matter what general method or material is being used, because <u>it is the teacher who makes the difference</u>.